QUICK START: DS Series, DS-RPC Series

by **Bay Technical Associates**

The DS-Series or DS-RPC Series is a console control data switch for applications that require control of multiple peripherals from a single host such as remote site management, out-of-band management, general data switching, etc.

Installation

The DS Series or DS-RPC Series base units come with optional input modules such as the DS 71, DS71-MD3, DS62, DS72, DS73 and DS74. This manual will be divided into sections that go into brief detail about each product listed above. The samples used for the below is the DS4D-RPC, with the DS71-MD3, DS72 and DS74 modules. The actual screen displays of your unit may vary by model.

Remove the DS from the package. Check the contents of shipment to make sure that you received:

- ❑ DS or DS-RPC base unit with modules.
- ❑ RJ08X007 (RJ45 Rollover Cable)
- ❑ 9FRJ45PC-4 (DB-9 to RJ45 Adapter)

Serial Setup

- Connect the *9FRJ45PC-4* adapter to the user's computer.
- Connect the RPC's EIA-232 port to the adapter via the *RJ08X007* rolled flat ribbon cable.
- Use terminal emulation software to access the unit.[1]

DS71 or DS71-MD3 - RS232 and Modem host module for the DS SERIES or DS-RPC Series chassis.

Operation

Once connected you will see the menu screen as shown in *Figure 1*. This shows the operation of the unit. When prompted at the unit's startup menu select "C" followed by a <CR>.[2] You will be brought to the Configuration menu As shown in *Figure 2*.

Figure 1

```
Module 1: admin       on Host EIA-232
Device A          (4,1).............1
Device B          (4,2).............2
Device C          (4,3).............3
Device D          (4,4).............4
BT-DS RPC         (5,1).............5
Configure.............................C
I/O Modules Reset...................RM
Unit Reset..........................RU
Exit..................................X
Logout................................T
Enter Request :
```

Figure 2

```
Enter Request :c

Configuration
DS71              (1).................1
DS71-MD3          (2).................2
DS74              (4).................3
BT-DS RPC         (5).................4
Exit..................................X,CR
Enter Request :1
```

[1] Any type of Terminal Emulation software can be used, like Windows HyperTerminal, Reflections, Procom, etc with a port configuration set to 9600, 8, none, 1. This manual uses Tera Term found at http://hp.vector.co.jp/authors/VA002416/ttermp23.zip.

[2] <CR> = HRT or ENTER. This can also take you back to the previous screen.

Unit Configuration

At the prompt, type the number associated with the module you want to access, followed by a <CR>. You will be taken to the module's configuration window where you will be able to edit any of the information as shown in *Figure 3*. The following pages define each line of the configuration menu.

Figure 3

```
Enter Request :1

Copyright(C) Bay Technical Associates 2001
DS71 Data Switch Series - Host Module
Revision F.4.03
Module 1

Status.............................1
Serial Port Configuration..........2
Port Device Name...................3
Port Select Code...................4
Attention Character................5
Disconnect Timeguard...............6
Connect Port ID Echo...............7
Login Setup........................8
DCD Logon/Logoff...................9
Unit ID............................U
Exit...............................X,CR

Enter Request :
```

Status

Used to view the status of the installed modules, modem setup, login setup, assigned user ports and associated information by issuing a series of carriage returns.

Serial Port Configuration

DS-Series host modules translate data for devices using different serial configurations as shown in *Figure 4*.

The Baud Rate, Word Size, Stop Bits, and Parity can all be configured through the serial port using the self-explaining menus. Xon/Xoff, RTS Line Driver, and DTR Line Driver cannot be configured using the serial port; they must be configured using the phone line. The factory default settings are **9600bps, 8 data bits, no parity, one stop bit, Xon/Xoff and DTR low**.

Figure 4

```
Enter Request :2

Module 1 Serial Port Configuration :
+----+----------------+-------+------+------+------+----+----+----+----+
|Port|     Device     |  Baud | Word | Stop |Parity|Xon/ Xoff|LineDrive|
|    |      Name      |  Rate | Size | Bits |      |Xmit|Recv|DTR |RTS |
+----+----------------+-------+------+------+------+----+----+----+----+
|  1 |Host EIA-232    |  9600 |   8  |   1  | None | Off| Off|High|High|
+----+----------------+-------+------+------+------+----+----+----+----+
Exit/Save.....1  Set Parity........5
Set Baud Rate..2  Set Xon/Xoff......6
Set Word Size..3  RTS Line Driver...7
Set Stop Bits..4  DTR Line Driver...8
```

Port Device Name

Select the port you want to rename, followed by a <CR>. Type the name you want to associate with the port as shown in *Figure 5*.

Figure 5

```
Enter Request :3

Module 1 Device Name :
+----+----------------+-------+------+------+------+----+----+----+----+
|Port|     Device     |  Baud | Word | Stop |Parity|Xon/ Xoff|LineDrive|
|    |      Name      |  Rate | Size | Bits |      |Xmit|Recv|DTR |RTS |
+----+----------------+-------+------+------+------+----+----+----+----+
|  1 |Host EIA-232    |  9600 |   8  |   1  | None | Off| Off|High|High|
+----+----------------+-------+------+------+------+----+----+----+----+
Enter Port Device Name (Max. 16 characters):
or press ENTER for no change .....:
```

Port Select Code

The Port Select Code is an ASCII character string sent by the host terminal to the module to select an I/O port on a DS74 peripheral module. The Port Select Code's factory default setting is **$BT** and is programmable up to 8 characters as shown in *Figure 6*.

Figure 6

```
Enter Request :4
Port Select Code is.................$BT
Change It ? (Y/N) :
```

Attention Character

Attention Character = semi-colon (;). Pressing the attention character 5 consecutive times will return back to the main menu. This menu allows you to change the value of the attention character for the DS series, so as not to negate the access menu as shown in *Figure 7*.

Figure 7

```
Enter Request :5
Attention Character is..... ;

Enter Attention Character :
```

Disconnect Timeguard

This feature provides reliable binary data transmission by providing a one-second "timeguard" after the DS Series receives the attention character, eliminating port disconnection. The Timeguard will disconnect your session if you have been idle too long. Factory default is **disabled** as shown in *Figure 8*.

Figure 8

```
Enter Request :6
Disconnect Time Guard is...........Disabled
Enable ? (Y/N, CR for no change):
```

Connect Port ID Echo

This option allows you to enable or disable the Port ID echo. The echo is a feature that allows you to view the port ID when you log onto the port. To change; select *8* followed by a <CR>. To enable select *Y* followed by a <CR> as shown in *Figure 9*. The factory default setting is **disabled**.
By selecting 2 followed by a <CR>, you can echo the module and port number.
By selecting *3* followed by a <CR>, you can echo the device name.

Figure 9

```
Enter Request :8
Port ID Echo is.....................Disabled

Disable Port ID Echo...............1
Use Module, Port Number............2
Use Device Name....................3
Exit...............................X,CR

Enter Request :
```

Login Setup

This menu allows the user to enable or disable the Header, Access Control, Menu, Manage Users, Auto Connect, Dial Back Number, and Assign User Ports. Shown in *Figure 10*.

Figure 10

```
Enter Request :8

Header.............................1
Access Control.....................2
Menu...............................3
Manage Users.......................4
Auto Connect.......................5
Dial Back Number...................6
Assign User Ports..................7
Exit...............................X,CR

Enter Request :
```

Header
This allows the user to have limited control over the Header, either enable or disable option to display the Header upon connection to the host module. **NOTE: The header may appear different depending on the type of module installed.**

Access Control
This will allow you to access the menu where you can modify such options as prompting for usernames and passwords for both network and serial port access.

Menu
This allows user to enable or disable the Menu on start up. If disabled, the header appears upon login without the main menu. **NOTE: To invoke the main menu when disabled, enter the attention character five times (;;;;;).**

Manage Users
This will allow access to the menu that allows the administrator to change user passwords or add new users. Up to 19 users plus an administrator allowed. Usernames are case sensitive and alphanumeric.

Auto Connect
This feature allows users to select the DS74 module and port that will be automatically connected on power up. The auto connect port has priority over the login setup menu enable/disable selection. When the 'Auto Connect" is enabled, the header and main menu is automatically disabled.

Dial Back Number
This allows user to dial a number, hang up and call the number back when using a secure phone line.

Assign User Ports
This allows the administrator to limit users' port access.

Local Modem Setup

This allows the user to change the Rings to Answer, Connectivity Time-Out and Escape Character, Modem-to-Modem XON/XOFF setting, as shown in *Figure 11*.

Figure 11

```
Enter Request :9

Local Modem Setup :
Rings to Answer.....................1
Connectivity Timeout................2
Escape Character....................3
Modem to Modem Xon/Xoff.............4
Exit................................X,CR

Enter Request :
```

Rings to Answer
This allows the user to change the number of rings (1-4) to auto-answer. The default setting is **2**.

Connectivity Timeout
This allows the user to configure the amount of connectivity (5 to 255 minutes) before the modem automatically disconnects. Entering a time of 0 disables the Connectivity Timeout. The timer starts when the modem answers (DCD goes high). The modem will disconnect, regardless of activity, when time runs out. The default setting is **60 minutes**.

Escape Character
This feature will prevent the modem module from accidentally going into the command mode of operation. This Escape Character is used to tell the modem the information you are sending is a command and not data (command mode). This is programmable from the decimal value of 0 to 127. The default setting is **43**, which is 2B Hex or a plus sign (+).

Modem to Modem Xon/Xoff
This feature is an ASCII Xon or Xoff character used by one modem signaling the other to stop or resume transmitting data. The default setting is **disabled**.

DCD Logon/Logoff (if available on DS71 modules)

This allows the user to enable/disable a command that prevents unwanted modem connections by requiring login before a modem connection is established. If a disconnection occurs, the DS-Series will logoff. Default setting is **enabled**, as shown in *Figure 12*.

Figure 12

```
Enter Request :9

DCD Logon/Logoff mode is...........Enabled
Enable ? (Y/N, CR for no change):
```

Unit ID

The unit ID (64 char. Max) appears in the DS series module Main Menu and uniquely identifies the unit as shown in *Figure 13*.

Figure 13

```
Enter Request :u

Unit ID is.........................DS71
Change It ? (Y/N) :
```

For more detailed information on the DS71 modules, follow this link:
http://www.baytech.net/ftp_series.shtml#manuals, then look under DS Series.

DS62 - Ethernet & RS232 host module for DS SERIES chassis

Operation

Once connected you will see the menu screen as shown in *Figure 14*. This shows the operation of the unit. Depending on which Network host module you have, the below screens may vary. The screens below are show with the DS62 module. When prompted at the unit's startup menu select "C" followed by a <CR>. This will take you to the Configuration menu.

Figure 14

```
  DS-Series - F 1.01.19      (C) 2003 Bay Technical Associates
  Module Name:DS62


  Module: 1
  Attention Character:  ;
  Device A          (3 ,1).........1
  Device B          (3 ,2).........2
  Device C          (3 ,3).........3
  Device D          (3 ,4).........4
  Device A          (4 ,1).........5
  Device B          (4 ,2).........6
  Device C          (4 ,3).........7
  Device D          (4 ,4).........8
  Status.............................S
  Configure..........................C
  Unit Reset.........................RU
  Logout.............................T
Enter Request :
```

Unit Configuration

The configuration menu allows the user to choose which unit they would like to access. Enter the number that corresponds with the DS62 followed by a <CR>. Now the module can be configured as shown in *Figure 15*. This menu is where you will be able to edit any of the information listed below. The following pages define each line of the configuration menu.

Figure 15

```
  Enter Request :c
Configuration
  DS62              .....................1
  DS74   module #3.....................2
  DS74   module #4.....................3


  Enter Request :1

  Copyright(C) Bay Technical Associates 2003
  DS62 Ethernet Host Module
  Revision F 1.01.19      Module 1
  Hardware 1.01         Serial number  700006

    Status.............................1
    Serial Port Configuration.......2
    Serial Port Device Name.........3
    Attention Character.............4
    Disconnect Timeguard............5
    Connect Port ID Echo............6
    Login Setup.....................7
    Network Port Configuration......8
    Module Name.....................9
    SNMP Configuration.............10
    RPC Management.................11
    Web Server Configuration.......12
    Exit.............................X,CR

  Enter Request :
```

Status

Used to view the status of the installed modules, network setup, login setup, and associated information by issuing a series of carriage returns.

Serial Port Configuration

The DS-Series host modules can use different serial port configurations as shown in *Figure 16*.

Handshaking, Baud Rate, Word Size, Stop Bits, and Parity can all be configured through the serial port using the menus. RTS Line Driver, and DTR Line Driver cannot be configured using the serial port; they must be configured using the phone line. The default settings are **9600bps, 8 data bits, no parity, one stop bit, RTS and DTR low**.

Figure 16

```
  Enter Request :2
+----+------+-----------------+------+------+------+------+---------+----+----+
|Port|Device|     Device      | Baud | Word | Stop |Parity|Handshake|Line|Drive|
|    | Type |      Name       | Rate | Size | Bits |      |         |DTR |RTS |
+----+------+-----------------+------+------+------+------+---------+----+----+
|  1 | RS232| EIA-RS232       | 9600 |  8   |  1   | None | None    | HI | HI |
+----+------+-----------------+------+------+------+------+---------+----+----+

  Handshaking.....................1
  Baud Rate.......................2
  Word Size.......................3
  Stop Bits.......................4
  Parity..........................5
  RTS Line Driver Inactive State...6
  DTR Line Driver Inactive State...7

  Enter Request :
```

Serial Port Device Name

Select the port you want to rename, followed by a <CR>. Type the name you want to identify the port as shown in *Figure 17*.

Figure 17

```
  Enter Request :3

Current device name: EIA-RS232
Enter device name for serial port ((1 - 16 char., CR to end) :
```

Attention Character

Attention Character = semi-colon (;). Pressing the attention character 5 consecutive times will return back to the main menu. This menu allows you to change the value of the attention character for the DS series, so as not to negate the access menu as shown in *Figure 18*.

Figure 18

```
Enter Request :4

Attention Character is.....  ;

Enter Attention Character :
```

Disconnect Timeguard

This feature provides reliable binary data transmission by providing a one-second "timeguard" after the DS-Series receives the attention character. If more data is received within the delay period, the DS series treats the character as data, not an attention character; thereby preventing unwanted port disconnection. The Timeguard session will disconnect your session if you have been idle too long. The default setting is **disabled** as shown in *Figure 19*.

Figure 19

```
Enter Request :5

Disconnect Time Guard is..... Disabled
Enable ? (Y/N), CR for no change) :
```

Connect Port ID Echo

This identifies the module number and port number you are connected to. To change, select option 8, followed by a <CR>. To enable, select Y, followed by a <CR> as shown in *Figure 20*. The default setting is **disabled**.

By selecting 2, followed by a <CR>, you can echo the module and port number.

By selecting 3, followed by a <CR>, you can echo the device name.

Figure 20

```
Enter Request :6

Port ID Echo is.....................Disabled

Disable Port ID Echo...............1
Use Module, Port Number............2
Use Device Name....................3
Exit...............................X,CR

Enter Request :
```

Login Setup

This menu allows the admin or user to enable or disable the Header, Password, Access Control, Menu, Manage Users, Auto Connect, Dial Back number and Assign User Ports as shown in *Figure 21*. Depending on what firmware the DS62 module has, the Login Setup menu may be different than what is shown in this figure, but are defined below.

Figure 21

```
Enter Request :7

   Access Control...................1
   Manage Users.....................2
   Direct Port Connection..........3
   Exit.............................X,CR

Enter Request :
```

Access Control

This will allow you to access the menu where you can modify such options as prompting for usernames and passwords for both network and serial port access.

Manage Users

This will allow access to the menu that allows the administrator to change user passwords or add new users. Up to 19 users plus an administrator allowed. Usernames are case sensitive and alphanumeric.

Direct Port Connection

This will allow access to the menu to allow the user to be connected directly to a DS serial port, as determined by the TCP port, starting at TCP port 50001.

Network Port Configuration

This allows access to the menu to change such options as the IP Address, Subnet Mask, Gateway, Bootp, DHCP, and Telnet; all of which are necessary during initial startup. The *Connection Inactivity Timeout* allows you to enable/disable whether the firmware ends your session or "times out." The default is 1 hour, but when disabled there is no set time out. Disabling the *Carriage Return Translation* allows you to bypass all unnecessary carriage returns, and it will send you straight to the next "end of line." The *DHCP, Telnet and SSH* options allow you to enable or disable these options as shown in *Figure 22*.

Figure 22

```
Enter Request :8
Network setup :
Ethernet Address.................  00:C0:48:0A:AE:66
IP Address.......................    0.0.0.0
Subnet Mask......................    0.0.0.0
Default Gateway..................    0.0.0.0

Connection Inactivity Timeout (mins): Disabled
Carriage Return Translation: Disabled
Break Length (msecs):  350
DHCP is Disabled   Telnet is Enabled    SSH is Enabled
SSH host keys are set to factory default

IP Address.........................1
Subnet Mask........................2
Gateway Address....................3
Inactivity Timeout.................4
Carriage Return Translation.......5
Break Length.......................6
DHCP Enable/Disable................7
Telnet Enable/Disable..............8
SSH Enable/Disable.................9
SSH Host Key Generation...........10
Enable Firmware Upgrade...........11
Enable SSL Cert Upload............12
Enable Configuration File Upload..13
Restore Configuration Defaults....14
Get Current Configuration File....15
Display Configuration Error Log...16
Exit..............................X,CR

Enter Request :
```

IP Address

The IP address is the network address assigned by your network manager for your network. The IP address consists of four bytes, each byte ranging from 0 to 255.

NOTE: There should be no active connections while configuring the DS62 module. The unit should be reset upon completion of configuration

Subnet Mask

The Subnet Mask is a bit mask that identifies the network portion of the IP address, allowing the DS62 to determine whether to send a packet directly to the client or a gateway. The Subnet Mask consists of four bytes, each byte ranging from 0 to 255.

Gateway

The Gateway is the address of a router for connection to their networks. The Gateway address consists of four bytes, each byte ranging from 0 to 255.

Inactivity Timeout

When this option is enabled, the DS62 will automatically disconnect, if there is no activity, after the programmed amount of time. The enabling input can be from 1 to 120 minutes. Default setting is **0 (disabled)**.

Carriage Return Translation

This option enables the DS62 Telnet processor to strip line feeds or nulls, which follow carriage returns. Default setting is **disabled**.

Break Length

Users may configure the DS62 for a break length of 1 to 1000 milliseconds. When a user, running a Telnet session with the DS62 and connected to a serial port on a DS74, sends a Telnet break command (0xF3) to the DS62, the serial port will send a break signal of the programmed duration. Default setting is **350 milliseconds**.

DHCP Enable/Disable

Dynamic Host Configuration Protocol (DHCP) is a communications protocol that lets network administrators manage centrally and automate the assignment of Internet Protocol (IP) addresses in an organization's network. Default setting is **disabled**.

Telnet Enable/Disable

Telnet is a user command and an underlying TCP/IP protocol for accessing remote devices. On the Web, HTTP and FTP protocols allow you to request specific files from remote computers, but not to actually be logged on as a user of that computer. Default setting is **enabled**.

SSH Enable/Disable

Secure Shell (SSH), sometimes known as Secure Socket Shell, is a Unix-based command interface and protocol for securely getting access to a remote computer. It is widely used by network administrators to control Web and other kinds of servers remotely. Default setting is **enabled**.

SSH Host Key Generation

Selecting this option will allow the user to generate a SSH host key. A SSH host key is used as part of SSH encryption process. Each DS62 is shipped with a default SSH host key which is the same default host key for all DS62s shipped. It is important that the user generate a new SSH host key if SSH communications will be used. Generating a new SSH host key assures that the host key is unique.

Note: It can take the DS62 up to 10 minutes to generate a new host key.

Enable Firmware Upgrade

If your DS62 module has this option, this allows for the admin to set up the user name and password to flash upgrade the firmware on the DS62 module through an FTP client. This setup prevents anyone from making hardware changes that may damage the module without prior authorization.

Enable SSL Cert Upload

Selecting this option will allow the user to upload an SSL Certificate to the DS62 via ftp. After enabling the certificate upload, the user should use an ftp client to log into the DS62 and send the certificate file. The filename of the certificate must be ssl.pem.

An SSL certificate is used by the DS62 to create secure web connections. The DS62 is shipped with a default SSL certificate. This certificate should be replaced with one that better suits the users environment. The file format is checked after download to insure that the certificate is valid.

Enable Configuration File Upload

Selecting this option will allow the user to upload a configuration file that will configure the DS62, all the modules in the DS unit and any RPCs attached to the DS unit. A file representing the current configuration can be uploaded from the DS62.

Restore Configuration Defaults

Selecting this option will restore the DS62 configuration to factory defaults.

Get Current Configuration File

Selecting this option will allow the user to get a file via ftp that represents the current DS configuration. After selecting this option the user can use an ftp client to upload the file "confupload" from the DS62.

Display Configuration Error Log

If there is an error in uploading or downloading configuration, selecting this option will list specific errors that occurred.

Module Name

Allows for an individual naming scheme when viewed at startup as shown in *Figure 23*.

Figure 23

```
Enter Request :9

Module Name is:  DS62


Enter Module Name (32 chars max).
: 
```

SNMP Configuration

Depending on the firmware, *SNMP Configuration* allows the admin to control whether or not a user has Read/Write access or Read access only. It also allows the admin to control which IP addresses are allowed to be a host trap, and simply whether to enable or disable the entire SNMP function as shown in *Figure 24*.

Figure 24

```
Enter Request :10
SNMP Trap Host 1 Address..........1
SNMP Trap Host 2 Address..........2
SNMP Trap Host 3 Address..........3
SNMP Trap Host 4 Address..........4
SNMP Read-Only Community..........5
SNMP Read-Write Community.........6
SNMP Enable.......................7
Exit.............................X,CR

Enter Request :
```

RPC Management

Allow you to set all variables of the RPC unit remotely without ever entering the firmware of the *RPC* itself as shown in *Figure 25*.

Figure 25

```
  Enter Request :11


 Host-controlled RPC Feature Configuration
  Temperature Alarm Threshold........1
  Under Voltage Alarm Threshold......2
  Over Voltage Alarm Threshold.......3
  Low Current Alarm Threshold........4

  Enter Request :
```

Web Server Configuration

You can Enable or Disable Web Server capabilities in this menu. Such capabilities include: Web Login, Web Secure Login, and Web Login Activity Timeout as shown in *Figure 26.*

Figure 26

```
Enter Request :12
Web Enable........................1
Web Login Enable..................2
Web Secure Login Enable...........3
Web Login Activity Timeout........4
Exit..............................X

Enter Request :
```

Operation

Once connected you will see the menu screen as shown in *Figure 27*. Depending on which Network host module you have, the below screens may vary. The screens below are show with the DS72 module. When prompted at the unit's startup menu select "C" followed by a <CR>. This will take you to the Configuration menu.

Figure 27

```
Data Switch Series - F.1.13z   (C) 2001 Bay Technical Associates
Unit ID: DS72
Module: 1
Port Select Code: $BT
Attention Character: ;
Device A        (4,1)..........1
Device B        (4,2)..........2
Device C        (4,3)..........3
Device D        (4,4)..........4
BT-DS RPC       (5,1)..........5
Configure.....................C
Status........................S
I/O Modules Reset.............RM
Unit Reset....................RU
Exit..........................X
Logout........................T

Enter Request :
```

Configuration

The configuration menu allows the user to choose which unit they would like to access. Enter the number that corresponds with the DS72 followed by a <CR>. Now the module can be configured as shown in *Figure 28*.

Figure 28

```
Enter Request :c

Host Slot: 1

Configuration
  Module 1.......................1
  Module 2.......................2
  Module 4.......................3
  Module 5.......................4
  Select Port....................S
  Exit..........................X,CR

Enter Request :
```

Unit Configuration

At the prompt, type the number associated with the module you want to access, followed by a <CR>. You will be taken to the module's window where you will be able to edit any of the information listed in *Figure 29*. The following pages define each line of the configuration menu.

Figure 29

```
Enter Request :1

Copyright(C) Bay Technical Associates 2001
DS-72 Data Switch Series - Telnet Host Module
Revision F.1.13z
Module 1

  Status........................1
  Serial Port Configuration.....2
  Port Device Name..............3
  Port Select Code..............4
  Attention Character...........5
  Disconnect Timeguard..........6
  Connection Override...........7
  Connect Port ID Echo..........8
  Login Setup...................9
  Network Port Configuration.....10
  Unit ID.......................11
  AutoRestore...................12
  Configure Another Module......13
  Exit..........................X,CR

Enter Request :
```

Status

Used to view the status of the installed modules, network setup, login setup, and associated information by issuing a series of carriage returns.

Serial Port Configuration

The DS-Series host modules can use different serial port configurations as shown in *Figure 30*.

The Baud Rate, Word Size, Stop Bits, and Parity can all be configured through the serial port using the menus. Xon/Xoff, RTS Line Driver, and DTR Line Driver cannot be configured using the serial port; they must be configured using the phone line. The default settings are **9600bps, 8 data bits, no parity, one stop bit, Xon/Xoff and DTR low**.

Figure 30

```
Enter Request :2
+----+----------------+-------+------+------+------+----+----+----+----+
|Port|    Device      |  Baud | Word | Stop |Parity|Xon/ Xoff|LineDrive|
|    |     Name       |  Rate | Size | Bits |      |Xmit|Recv|DTR |RTS |
+----+----------------+-------+------+------+------+----+----+----+----+
|  1 |EIA-232         |  9600 |  8   |  1   | None | Off| Off| Low| Low|
+----+----------------+-------+------+------+------+----+----+----+----+
Save.......1  Parity.............5
Baud Rate..2  Xon/Xoff...........6
Word Size..3  RTS Line Driver...7
Stop bits..4  DTR Line Driver...8
```

Port Device Name

Select the port you want to rename, followed by a <CR>. Type the name you want to identify the port as shown in *Figure 31*.

Figure 31

```
Enter Request :3
+----+----------------+-------+------+------+------+----+----+----+----+
|Port|    Device      |  Baud | Word | Stop |Parity|Xon/ Xoff|LineDrive|
|    |     Name       |  Rate | Size | Bits |      |Xmit|Recv|DTR |RTS |
+----+----------------+-------+------+------+------+----+----+----+----+
|  1 |EIA-232         |  9600 |  8   |  1   | None | Off| Off| Low| Low|
+----+----------------+-------+------+------+------+----+----+----+----+

Enter Port Device Name (Max. 16 characters):
or press ENTER for no change .....:
```

Port Select Code

The Port Select Code is an ASCII character string sent by the host terminal to the module to select an I/O port on a DS74 peripheral module. This character string enables the user to connect to any given port when active in a non-menu environment. The Port Select Code's default state is **$BT** and is programmable up to 8 characters as shown in *Figure 32*.

Figure 32

```
Enter Request :4
Port Select Code is..............$BT

Enter Port Select Code (Max. 8 characters) :
```

Attention Character

Attention Character = semi-colon (;). Pressing the attention character 5 consecutive times, will return back to the main menu. This menu allows you to change the value of the attention character for the DS series, so as not to negate the access menu as shown in *Figure 33*.

Figure 33

```
Enter Request :5
Attention Character is..... ;

Enter Attention Character :
```

Disconnect Timeguard

This feature provides reliable binary data transmission by providing a one-second "timeguard" after the DS-Series receives the attention character. If more data is received within the delay period, the DS series

treats the character as data, not an attention character; thereby preventing unwanted port disconnection. The Timeguard session will disconnect your session if you have been idle too long. The default setting is **disabled** as shown in *Figure 34*.

Figure 34

```
Enter Request :6
Disconnect Time Guard is.....Disabled

Enable ? (Y/N), CR for no change) :
```

Connection Override

This feature allows the user to override another user's connection and force priority over other users. The default setting is enabled as shown in *Figure 35*.

Figure 35

```
Enter Request :7
Connection override is.....Enabled

Enable ? (Y/N), CR for no change) :
```

Connect Port ID Echo

This identifies the module number and port number you are connected to. To change, select option 8, followed by a <CR>. To enable, select Y, followed by a <CR> as shown in *Figure 36*. The default setting is **disabled**.

By selecting 2, followed by a <CR>, you can echo the module and port number.

By selecting 3, followed by a <CR>, you can echo the device name.

Figure 36

```
Enter Request :8
Port ID Echo is.....Disabled

Disable Port ID Echo.....1
Use Module, Port Number.....2
Use Device Name.....3
Exit.....X,CR

Enter Request :
```

Login Setup

This menu allows the admin or user to enable or disable the Header, Password, Access Control, Menu, Manage Users, Auto Connect, Dial Back number and Assign User Ports as shown in *Figure 37*. Depending on what firmware the DS72 module has, the Login Setup menu may be different than what is shown in this figure, but are defined below.

Figure 37

```
Enter Request :9
  Header.....1
  Password.....2
  Menu.....3
  Auto Connect.....4
  Exit.....X,CR

Enter Request :
```

Header

This allows the admin or user to have limited control over the Header, either enable or disable option to display the Header upon initialization of power or after a modem connection to the host module has been established.

Access Control

This will allow the admin to access the menu where you can modify such options as prompting for usernames and passwords for both network and serial port access.

Manage Users
This will allow access to the menu that allows the administrator to change user passwords or add new users. Up to 19 users plus an administrator allowed. Usernames are case sensitive and alphanumeric.

Password
This will allow the admin to access the menu to set up or change passwords for either network or serial port access.

Menu
This allows the admin or user to enable or disable this option to show the Menu on start up. If disabled, the header appears upon login without the main menu. **NOTE: To invoke the main menu when disabled, enter the attention character five times (;;;;;).**

Auto Connect
This feature allows the admin or user to select the module and port that will be automatically connected on power up. The auto connect port has priority over the login setup menu enable/disable selection. When the "Auto Connect" is enabled, it will disable the menu selection screen from appearing at the initial login sequence.

Network Port Configuration

This allows access to the menu to change such options as the IP Address, Subnet Mask, Gateway, Bootp, DHCP, and Telnet; all of which are necessary during initial startup. The *Inactivity Timeout* allows you to enable/disable whether the firmware ends your session or "times out." The default is 1 hour, but when disabled there is no set time out. Disabling the *Carriage Return Translation* allows you to bypass all unnecessary carriage returns, and it will send you straight to the next "end of line." The *Bootp, DHCP, and Telnet* options allow you to enable or disable these options as shown in *Figure 38*.

Figure 38

```
Enter Request :10
Network Configuration

IP Address:  0.0.0.0
Subnet Mask: 0.0.0.0
Gateway:     0.0.0.0
Ethernet Address: 00.C0.48.06.58.2D
Connection Inactivity Timeout (mins): Disabled
Carriage Return Translation: Disabled
Break Length (msecs): 350

IP Address.........................1
Subnet Mask........................2
Gateway............................3
Inactivity Timeout.................4
Carriage Return Translation.......5
Break Length.......................6
Exit...............................X,CR

Enter Request :
```

IP Address
The IP address is the network address assigned by your network manager for your network. The IP address consists of four bytes, each byte ranging from 0 to 255.
NOTE: There should be no active connections while configuring the DS72 module. The unit should be reset upon completion of configuration

Subnet Mask
The Subnet Mask is a bit mask that identifies the network portion of the IP address, allowing the DS72 to determine whether to send a packet directly to the client or a gateway. The Subnet Mask consists of four bytes, each byte ranging from 0 to 255.

Gateway
The Gateway is the address of a router for connection to their networks. The Gateway address consists of four bytes, each byte ranging from 0 to 255.

Inactivity Timeout
When this option is enabled, the DS72 will automatically disconnect, if there is no activity, after the programmed amount of time. The enabling input can be from 1 to 120 minutes. Default setting is **0 (disabled)**.

Carriage Return Translation

This option enables the DS72 Telnet processor to strip line feeds or nulls, which follow carriage returns. Default setting is **disabled**.

Break Length

Users may configure the DS72 for a break length of 1 to 1000 milliseconds. When a user, running a Telnet session with the DS72 and connected to a serial port on a DS74, sends a Telnet break command (0xF3) to the DS72, the serial port will send a break signal of the programmed duration. Default setting is **350 milliseconds**.

Unit ID

Describes the name of the module as shown in *Figure 39*.

Figure 39

```
  Enter Request :11
Unit ID is: DS72


  Enter Unit ID (64 chars max).
  :
```

Upgrade Firmware

If your DS72 module has this option, this allows for the admin to set up the user name and password to flash upgrade the firmware on the DS72 module through an FTP client. This setup prevents anyone from making hardware changes that may damage the module without prior authorization as shown in *Figure 40*.

Figure 40

```
Enter Request :12

   Upgrade Firmware.................1
   Set FTP User Name................2
   Set FTP User Password............3
   Exit.............................X,CR

Enter Request :
```

Auto Restore

Allows to unit to reset internally to prevent inadvertent lock ups of the module. This is transparent to the user and does not affect functionality of the module as shown in *Figure 41*. The default setting is **enabled**. *AutoRestore* acts like a watchdog. It executes a subroutine and forces a reset of the pathway when you have been inactive for too long. If you are logged on for too long or the Ethernet connection freezes, the subroutine will reset the connection and make it an open link. If an active session is idle for x amount of time then the amount of time greater than x and less than y, the session resets. If at any time the amount of elapsed time since the pathway became idle is equal to y, then the pathway resets. *(Default: x=1hr; y=2hrs.)*

Figure 41

```
Enter Request :12
AutoRestore is.....................Enabled

Enable ? (Y/N), CR for no change) :
```

SNMP Configuration

If your DS72 module has this option, *SNMP Configuration* allows the admin to control whether or not a user has Read/Write access or Read access only. It also allows the admin to control which IP addresses are allowed to be a host trap, and simply whether to enable or disable the entire SNMP function as shown in *Figure 42*.

Figure 42

```
Enter Request :9

   SNMP Trap Host 1 Address.........1
   SNMP Trap Host 2 Address.........2
   SNMP Trap Host 3 Address.........3
   SNMP Trap Host 4 Address.........4
   SNMP Read-Only Community.........5
   SNMP Read-Write Community........6
   SNMP Enable......................7
   Exit.............................X,CR

Enter Request :
```

RPC Management

If your DS72 module has this option, this allows you to set the temperature, voltage and current threshold alarms for the unit remotely without ever entering the firmware of the *RPC* itself as shown in *Figure 43*.

Figure 43

```
Enter Request :14

Host-controlled RPC Feature Configuration
   Temperature Alarm Threshold.....1
   Multiple Strip Current Monitor..2
   Under Voltage Alarm Threshold...3
   Over Voltage Alarm Threshold....4
   Low Current Alarm Threshold.....5

Enter Request :
```

Configure Another Module

This option enables you to view the menu where the installed modules are listed as shown in *Figure 44*.

Figure 44

```
Enter Request :13

Configuration
   Module 1.........................1
   Module 4.........................2
   Module 5.........................3
   Select Port......................S
   Exit.............................X,CR

Enter Request :
```

For more detailed information on the DS72 modules, follow this link:
http://www.baytech.net/ftp_series.shtml#manuals, then look under DS Series.

DS73 or DS73TP - Ethernet peripheral module for DS SERIES chassis

Operation

Once connected you will see the menu screen as shown in *Figure 45*. This shows the operation of the unit. When prompted at the unit's startup menu select "C" followed by a <CR>. This will bring you to the Configuration menu as shown in *Figure 46*.

Figure 45

```
Module 1: admin      on Host EIA-232
DS73              (3,1).............1
Device A          (4,1).............2
Device B          (4,2).............3
Device C          (4,3).............4
Device D          (4,4).............5
BT-DS RPC         (5,1).............6
Configure............................C
I/O Modules Reset..................RM
Unit Reset...........................RU
Exit.................................X
Logout...............................T
Enter Request :
```

Figure 46

```
Enter Request :c

Configuration
DS71              (1).................1
DS71-MD3          (2).................2
DS73              (3).................3
DS74              (4).................4
BT-DS RPC         (5).................5
Exit.................................X,CR
Enter Request :
```

Configuration

At the prompt, type the number associated with the module you want to access, followed by a <CR>.

IMPORTANT: For network access you must configure the Module and the Dial-up IP addresses, Subnet Mask and Gateway Address. The module must be reset for network changes to take effect.
In order to configure the module, you must enter a username and password, followed by a <CR>.
NOTE: User name and password is case sensitive. The default user name is **user1.** The default password is **BTA** as shown in *Figure 47*.

Figure 47

```
DS73 Ethernet Module
F 1.03  Copyright (c) 2000
Bay Technical Associates

Enter username: user1

Enter password: ***
Login successful.

>
```

Unit Control

Once logged into the DS73, you will be taken to the module's configuration window where you will be able to edit any of the information as shown in *Figure 48*.

Figure 48

```
Module IP Address: 0.0.0.0            Dial-Up IP Address: 0.0.0.0
Subnet Mask:       0.0.0.0            Gateway Address:    0.0.0.0
Primary DNS:       0.0.0.0            Secondary DNS:      0.0.0.0
Primary NBNS:      0.0.0.0            Secondary NBNS:     0.0.0.0
Ethernet Address:  00.C0.48.00.00.00  Network Cable Connection:  good
Bootp Relay Agent: disabled

  Module IP Address........ 1
  Dial-Up Ip Address....... 2
  Subnet Mask.............. 3
  Gateway.................. 4
  Primary DNS.............. 5
  Secondary DNS............ 6
  Primary NBNS............. 7
  Secondary NBNS........... 8
  User Name................ 9
  Password.................10
  Module name..............11
  Bootp Relay Agent........12
  Exit..................... X,CR

  >
```

For more detailed information on the DS73 modules, follow this link:
http://www.baytech.net/ftp_series.shtml#manuals, then look under DS Series.

DS74

Operation

Once connected you will see the menu screen as shown in *Figure 49*. This shows the operation of the unit. When prompted at the unit's startup menu select "C" followed by a <CR>. This will bring you to the Configuration menu as shown in *Figure 50*.

Figure 49

```
Data Switch Series - F.1.13z   (C) 2001 Bay Technical Associates
Unit ID: DS72
Module: 1
Port Select Code: $BT
Attention Character: ;
Device A        (4,1)..........1
Device B        (4,2)..........2
Device C        (4,3)..........3
Device D        (4,4)..........4
BT-DS RPC       (5,1)..........5
Configure.....................C
Status........................S
I/O Modules Reset.............RM
Unit Reset....................RU
Exit..........................X
Logout........................T

Enter Request :
```

Figure 50

```
Configuration
DS71-MD3        (1).............1
DS73            (3).............2
DS74            (4).............3
BT-DS RPC       (5).............4
Exit............................X,CR
Enter Request :3
```

Unit Configuration

At the prompt, type the number associated with the module you want to access, followed by a <CR>. You will be taken to the module's configuration window where you will be able to edit any of the information as shown in *Figure 51*. The following pages define each line of the configuration menu.

Figure 51

```
Copyright(C) Bay Technical Associates 2001
Data Switch Series - EIA-232 I/O Module
Module 4

Status..........................1
Serial Port Configuration.......2
Port Device Name................3
Exit............................X,CR

Enter Request :
```

Status

The Status Menu displays all the configurations of the unit by issuing a series of carriage returns as shown in *Figure 52*.

Figure 52

```
Enter Request :1
+----+----------------+-------+------+------+------+----+----+----+----+
|Port|     Device     |  Baud | Word | Stop |Parity|Xon/| Xoff|Line|Drive|
|    |      Name      |  Rate | Size | Bits |      |Xmit|Recv|DTR |RTS |
+----+----------------+-------+------+------+------+----+----+----+----+
|  1 |Device A        |  9600 |   8  |   1  | None | Off| Off|Low |Low |
|  2 |Device B        |  9600 |   8  |   1  | None | Off| Off|Low |Low |
|  3 |Device C        |  9600 |   8  |   1  | None | Off| Off|Low |Low |
|  4 |Device D        |  9600 |   8  |   1  | None | Off| Off|Low |Low |
+----+----------------+-------+------+------+------+----+----+----+----+
Strike any Key to Continue
```

Serial Port Configuration

DS-Series host modules translate data for devices using different serial configurations as shown in *Figure 53*.

The Baud Rate, Word Size, Stop Bits, and Parity can all be configured through the serial port using the self-explaining menus. Select the parameter to change, make the change, and then save to non-volatile memory. Xon/Xoff, RTS Line Driver, and DTR Line Driver cannot be configured using the serial port; they must be configured using the phone line. The default settings are **9600bps, 8 data bits, no parity, one stop bit, Xon/Xoff and DTR low**.

Figure 53

```
Enter Request :2

Enter Serial Port Number (? = Help, ENTER = Exit) :1

Module 4 Serial Port Configuration :
+----+----------------+-------+------+------+------+----+----+----+----+
|Port|     Device     |  Baud | Word | Stop |Parity|Xon/ Xoff|LineDrive|
|    |      Name      |  Rate | Size | Bits |      |Xmit|Recv|DTR |RTS |
+----+----------------+-------+------+------+------+----+----+----+----+
|  1 |Device A        |  9600 |   8  |   1  | None | Off| Off|Low |Low |
+----+----------------+-------+------+------+------+----+----+----+----+
Exit/Save.....1  Set Parity.....5
Set Baud Rate..2  Set Xon/Xoff.....6
Set Word Size..3  RTS Line Driver...7
Set Stop Bits..4  DTR Line Driver...8

Enter Request :
```

Port Device Name

Port Device Name is a user programmable feature that uniquely identifies the port (or device connected to the port) you are configuring, which can be programmed to be any Alphanumeric character string up to 16 characters. Type what you wish to rename the module as shown in *Figure 54*.

Figure 54

```
Enter Request :3

Enter Port Number (? = Help, ENTER = Exit) : 1

Module 4 Device Name :
+----+----------------+-------+------+------+------+----+----+----+----+
|Port|     Device     |  Baud | Word | Stop |Parity|Xon/ Xoff|LineDrive|
|    |      Name      |  Rate | Size | Bits |      |Xmit|Recv|DTR |RTS |
+----+----------------+-------+------+------+------+----+----+----+----+
|  1 |Device A        |  9600 |   8  |   1  | None | Off| Off|Low |Low |
+----+----------------+-------+------+------+------+----+----+----+----+
Enter Port Device Name (Max. 16 characters):
or press ENTER for no change .....:

Enter Port Number (? = Help, ENTER = Exit) :
```

DS-RPC – RPC Controller for DS-RPC SERIES chassis

RPC Unit

If you are using a DS-RPC unit, access to the RPC portion of the unit can be reached by selecting the number that corresponds with the RPC unit number as shown in *Figure 55*.

NOTE: At any time during the session you need to go to the main menu or device menu, use the Attention Character = semi-colon (;). By pressing the attention character key 5 consecutive times, will return back to the main status menu.

Figure 55

```
Data Switch Series - F.4.03
Bay Technical Associates
Unit ID: DS71-MD3

Port Select Code: $BT
Attention Character: ;

      Module 1: admin      on Host EIA-232
      DS73              (3,1).............1
      Device A          (4,1).............2
      Device B          (4,2).............3
      Device C          (4,3).............4
      Device D          (4,4).............5
      BT-DS RPC         (5,1).............6
      Configure.............................C
      I/O Modules Reset.....................RM
      Unit Reset............................RU
      Exit, More............................X,ENTER
      Logout................................T
      Enter Request :6
```

Status Screen: The RPC unit can be controlled through simple commands through the menu shown in *Figure 56*. This displays the inherent state of the outlets, the Average and Apparent Power, RMS voltage and Current and Maximum Detected Current both in Amps. Also shown is the state of the Internal Temperature and the outlet circuit breaker status .

Figure 56

```
DS-RPC Series
(C) 2001 by BayTech
F2.03

Option(s) Installed:
True RMS Current
Internal Temperature
True RMS Voltage

Unit ID: BT-DS RPC

Average Power:    0 Watts        Apparent Power:   28 VA

True RMS Voltage: 119.3 Volts

True RMS Current:   0.2 Amps     Maximum Detected:   0.2 Amps

Internal Temperature:  26.0 C

Outlet Circuit Breaker: Good

 1)...Outlet  1       : On
 2)...Outlet  2       : On
 3)...Outlet  3       : On
 4)...Outlet  4       : On

Type "Help" for a list of commands

DS-RPC>
```

RPC Configuration: Type *config* followed by a <CR>. This screen will enable you to edit any of the information listed on the following pages as shown in *Figure 57*.

Figure 57

```
DS-RPC Series
(C) 2001 by BayTech
F2.03

Option(s) Installed:
True RMS Current
Internal Temperature
True RMS Voltage

Unit ID: BT-DS RPC


1)...Manage Users
2)...Change Outlet Name
3)...Enable/Disable Confirmation
4)...Enable/Disable Status Menu
5)...Change Unit ID
6)...Change Alarm Threshold
X)...Exit
Enter Request:
```

Manage Users: The Manage Users menu shown in *Figure 58* allows the admin to add, delete, or rename usernames. This menu also allows the administrator to edit the level of outlet access the user is granted.

Figure 58

```
Enter Request: 1

-----------------------------------------------
|       User          |   Assigned Outlets    |
|                     |  1  |  2  |  3  |  4  |
-----------------------------------------------
-----------------------------------------------
 A)...Add User
 D)...Delete User
 R)...Rename User

Enter user number to assign Outlets, A, D or R.
```

User Access: Once you add a user, you can grant/restrict the outlets assigned to a user.

To add multiple outlets under the user name, use the following nomenclature: X, X, X, X. Where "X" is the number of the outlet you wish to assign.

Any changes being made do not take affect until the selected user is logged in.

To switch a user, you must log out and log back in under the new user name.

Change Outlet Name: Allows the administrator to change the name of the outlets.

Enable/Disable Confirmation: Enables/Disables the confirmation of choices. Example, "Turn off all outlets [Y/N]?"

Enable/Disable Status Menu: Enables/Disables the status screen. The status is the screen with the Amperage and Voltage readings shown when you first log on to the unit.

Change Unit ID: Allows the user to change the name of the unit. Defaulted as something similar to BT DS-RPC. Allows the user to personalize or customize name or location, up to 31 alphanumeric characters.

Change Alarm Threshold: The Alarm Threshold is a value that sets the minimal allowed amperage that will sound the alarm.

Password: Type *password* followed by a <CR> as shown in *Figure 59*. This password is for the controller part of the unit.

Figure 59

```
DS-RPC>password
Enter new Password:
Re-Enter new Password:
Type "Help" for a list of commands

DS-RPC>
```

Help Menu: At the Status Menu shown in *Figure 60*, type *Help* followed by a <CR> to view the line commands for the DS-RPC's.

Figure 60

```
DS-RPC>help

On n <cr>      --Turn on an Outlet, n=0,1...4,all
Off n <cr>     --Turn off an Outlet, n=0,1...4,all
Reboot n <cr>  --Reboot an Outlet, n=0,1...4,all
Status <cr>    --DS-RPC Status
Config <cr>    --Enter configuration mode
Lock n <cr>    --Locks Outlet(s) state, n=0,1...4,all
Unlock n <cr>  --Unlock Outlet(s) state, n=0,1...4,all
Current <cr>   --Display True RMS Current
Clear <cr>     --Reset the maximum detected current
Temp <cr>      --Read current temperature
Voltage <cr>   --Display True RMS Voltage
Logout <cr>    --Logoff
Logoff <cr>    --Logoff
Exit <cr>      --Logoff
Password <cr>  --Changes the current user password
Whoami <cr>    --Displays the current user name
Unitid <cr>    --Displays the unit ID
Help <cr>      --This Command

Type "Help" for a list of commands

DS-RPC>
```

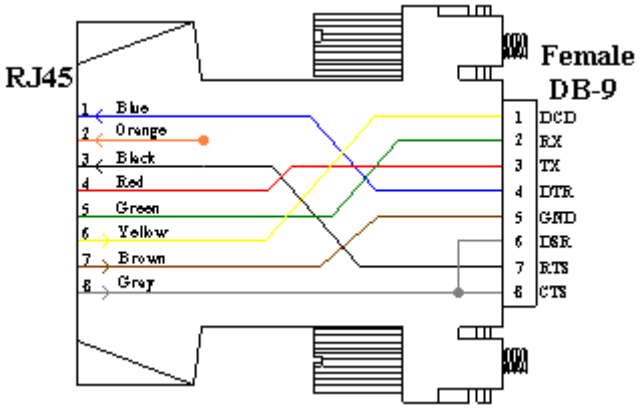
For more detailed information on the DS-RPC units, follow this link: http://www.baytech.net/ftp_series.shtml#manuals, then look under DS-RPC Series.

Cables and Adapters

Signal	RS-232 Port (DS)	RS-232 Port (RPC)	COM Port DE-9 Pin	COM Port DB-25 Pin	
DTR	1	1	4	20	DSR
GND	2	2		1	GND
RTS	3	3	7	5	CTS
TxD	4	4	3	2	RxD
RxD	5	5	2	3	TxD
DSR	6	N/C	6	6	DTR
GND	7	7	5	7	GND
CTS	8		8	4	RTS
DTR			4		DCD
DCD		8	1	8	DTR
RI	9			22	

Listed are the pin specifications for the BayTech cable and adapters and the terminal COM ports:

9FRJPC-4



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